

**Notice of Allowability**

Application No.

10/679,408

Examiner

Sean P. Shechtman

Applicant(s)

WATANABE ET AL.

Art Unit

2125

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 4/21/06.
2. ☒ The allowed claim(s) is/are 1-19.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 4/21/06
- ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_.
- ☐ Examiner's Amendment/Comment
- ☒ Examiner's Statement of Reasons for Allowance
- ☐ Other \_\_\_\_\_.

**DETAILED ACTION**

1. Claims 1-19 are presented for examination. Claims 1-9, 12, 13 have been amended.

***Claim Objections***

2. Objections withdrawn in light of the amendment filed April 21<sup>st</sup> 2006.

***Claim Rejections - 35 USC § 102***

3. Objections withdrawn in light of the amendment filed April 21<sup>st</sup> 2006.

***Claim Rejections - 35 USC § 103***

4. Objections withdrawn in light of the amendment filed April 21<sup>st</sup> 2006.

***Allowable Subject Matter***

5. Claims 1-19 are allowed.

The following is an examiner's statement of reasons for allowance:

While Ito teaches that after a certain time the displacement amount stabilizes. And Kakino teaches that, in finishing of a workpiece performed by using an end mill, it is necessary to make the position loop gain to be maximum within the range that the stability of the control system is not damaged.

Neither Ito nor Kakino, taken either alone or in obvious combination disclose a machining method and apparatus for positioning a work and tool in directions of X-, Y-, and Z- axes perpendicular to one another having all the claimed features of applicant's instant invention, specifically including:

Referring to claims 1 and 12, obtaining positioning response data until stabilizing a position deviation within a predetermined allowable range from a command-reach time after moving said work in each of said X- and Y- axis directions relative to said Z-axis corresponding

to an axis of said tool, prior to machining; and determining a lowering timing of movement of said tool in said Z-axis direction based on said obtained positioning response data.

Referring to claim 9, setting an axis of said tool as said Z-axis, and obtaining a delay of Z-axis position response of a main shaft holding said tool, prior to machining; and setting a movement start time for said X- and Y-axes at a time point when time obtained by adding said delay of Z-axis position response of said main shaft to a command time required from a forward end of said tool inside said work to a surface of said work has passed from a time point when said forward end of said tool reached a cutting distance.

Referring to claim 13, prior to machining, a table and tool are moved in two directions perpendicular to said Z-axis corresponding to a main shaft under specified examination conditions, a stabilization time required until position response of the moving means reaches and stays within a predetermined allowable range is obtained after a command-reach time of a positioning command, and at the time of machining, said tool is moved in said z-Axis direction based on said obtained stabilization time.

Also, there is no motivation to combine Ito or Kakino to meet these limitations. It is for these reasons that applicant's invention defines over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean P. Shechtman whose telephone number is (571) 272-3754.

The examiner can normally be reached on 9:30am-6:00pm, M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo P. Picard can be reached on (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SPS

Sean P. Shechtman

July 9, 2006

  
**ALBERT W. PALADINI**  
**PRIMARY EXAMINER**